

REMARKS

Claims 1-2 and 4-7 are pending in this application, of which claims 6-7 are withdrawn by the Patent Office pursuant to a Restriction Requirement. By this Amendment, claim 3 is cancelled. Claims 6-7 should be rejoined and allowed when claim 1 is allowed.

I. The Claims Meet All Formal Requirements

The Office Action rejects claim 3 under 37 C.F.R. 1.75(c). By this Amendment, claim 3 is cancelled, rendering the rejection moot.

II. The Claims Are Patentable Over The Applied References

A. Miyashita, Igari, Watanabe, and Ozaki

The Office Action (1) rejects claims 1 and 3-5 under 35 U.S.C. §103(a) over U.S. Patent Publication No. 2001/0001050 to Miyashita et al. (Miyashita) in view of Japanese Patent Publication No. 10-337882 to Igari et al. (Igari), and further in view of U.S. Patent No. 4,966,480 to Watanabe et al. (Watanabe); and (2) rejects claim 2 under 35 U.S.C. §103(a) over Miyashita in view of Igari and Watanabe, and further in view of Japanese Patent Publication No. 60-139454 to Ozaki et al. (Ozaki). The Office Action cites to the February 22, 2007 Office Action for the rationale of both rejections. Applicant respectfully traverses the rejections.

Miyashita discloses patterning of luminescent layers 106 and 107 by ink jet device 109 having a head 110 (Fig. 1, paragraphs [0041] and [0050]).

Igari discloses a system for washing or cleaning residual ink 41 with solvent 42. In operation, solvent 42 is pumped by solvent feed pump 34 through control valve 24 and ink jet tube 23b (Figs. 1 and 3).

The February 22, 2007 Office Action admits that Miyashita and Igari fail to disclose the steps of (1) filling a passage, including a liquid droplet ejection head to dispose the liquid droplets and a conduit to feed the functional solution to the liquid droplet ejection head, with

purified water; (2) filling the passage with a solvent dissolving both a solvent contained in the functional solution and the purified water; and (3) filling the passage with the solvent contained in the functional solution (February 22, 2007 Office Action, page 3).

Regarding independent claims 1 and 2, Watanabe and Ozaki fail to cure the deficiencies of Miyashita and Igari because: (a) at best, Igari and Watanabe, if combined as proposed, only disclose a single cleaning step; (b) one of ordinary skill would not have modified the single cleaning step of the applied references to be three cleaning steps; and (c) even if it is deemed to have been obvious to use three cleaning steps as alleged by the Office Action, the use of the specific steps recited in claims 1 and 2 are not supported or suggested by the applied references taken as a whole. Thus, the Office Action's rejection is based on impermissible hindsight using Applicant's own disclosure as a roadmap.

The applied references fail to disclose the claimed three cleaning steps (features (1)-(3) above) because, at best, under the proposed combination, only a single cleaning step is suggested. Igari and Watanabe each disclose only one cleaning step using one solvent, although Watanabe discloses alternative compositions for the solvent. The Patent Office cites to Watanabe for the teaching that water can be used in the cleaning solution of the proposed Miyashita-Igari combination (February 22, 2007 Office Action, page 3, "To have used water as the cleaning solvent would have been an obvious modification in light of Watanabe."); however, such a modification results in, at best, the single cleaning step of Igari modified to use water as disclosed by Watanabe. The steps of cleaning by purified water and of filling the inkjet head by the solvent alone are thus not disclosed or suggested by the proposed combination of references.

Further, because Igari and Watanabe each disclose and suggest only a single cleaning step, it would not have been obvious to use three or more steps as alleged by the Office Action. One of ordinary skill, having the applied references in front of him or her, would

have understood from the plain disclosures of at least Igari and Watanabe that one cleaning step is sufficient. Because one of ordinary skill would have understood that a single cleaning step is sufficient, one of ordinary skill would not have been motivated to use three cleaning steps because to do so would provide no apparent benefit, but rather would increase complexity of the system.

However, even if it is deemed to have been obvious to use three cleaning steps as alleged by the Office Action (contrary to the February 22, 2007 Office Action's statement that water could be substituted as the cleaning solvent as "an obvious modification in light of Watanabe", rather than Watanabe's cleaning step being added), the resultant combination of Miyashita, Igari, and Watanabe would result in the ink jet device 109 and head 110 of Miyashita, cleaned by the solvent 42 of Igari, and additionally cleaned as per Watanabe. Because the nature of Igari's solvent 42 is not clear, Igari's cleaning step under the proposed combination does not correspond to any of the claimed features (1)-(3) above. The February 22, 2007 Office Action acknowledges this: "Miyashita and Igari do not teach cleaning with purified water, a solvent dissolving both a solvent contained in the functional solution and the purified water, and the solvent contained in the functional solution" (page 3). Thus, at best, the proposed combination of Miyashita, Igari, and Watanabe only suggests cleaning by a solvent found in the ink, as per Watanabe. However, the features (1) and (2) above remain undisclosed and unsuggested by the proposed combination.

The February 22, 2007 Office Action cites to Miyashita, at paragraphs [0050] and [0070], as disclosing that the solvent can be water. However, paragraph [0050] does not discuss water and paragraph [0070] discusses PPV, used as the material that is deposited to form luminescent layers, as soluble in water or organic solvents. This disclosure is made to indicate that PPV can be used in an ink-jet printing process. Paragraph [0070] does not disclose using water as a cleaning liquid.

In light of the foregoing, the use of the specific steps of cleaning by purified water, cleaning by a solvent dissolving the solvent contained in the functional solution and purified water, and then filling the passage with the solvent of the functional solution as claimed are not disclosed or suggested by the applied references and can only be explained by the Office Action's reliance in impermissible hindsight on Applicant's disclosure as a roadmap to pick and choose elements of the various applied references.

In the Response to Arguments section, the September 13, 2007 Office Action alleges: (i) that it would have been obvious to apply three cleaning steps because, if one cleaning step is effective, three will be more effective; (ii) that Miyashita discloses cleaning with water; and (iii) that the use of purified water instead of regular water is not a patentable difference. However, the Office Action fails to respond to the argument that the Examiner is using Applicant's disclosure in impermissible hindsight.

Regarding point (i), as discussed above, one of ordinary skill in the art would not have used three cleaning steps because both Igari and Watanabe teach one cleaning step and because they do not disclose any problems with cleaning only by one step. However, even if one of ordinary skill would have been motivated to use three cleaning steps, under the Office Action's own rationale, the same cleaning step would be used in all three steps (September 13, 2007 Office Action, page 6: "if a teaching of cleaning the dishes only once removes all oil from the dishes, then cleaning them multiple times would further clean the dishes and further remove oil."). Thus, even under the Office Action's rationale, the three claimed cleaning steps are not disclosed or suggested.

Regarding point (ii), contrary to the acknowledgement that Miyashita and Igari fail to disclose filling a passage with purified water (February 22, 2007 Office Action, page 3), both the February 22, 2007 and September 13, 2007 Office Actions, in the Response to Argument sections, allege that Miyashita discloses cleaning with water. The February 22, 2007 Office

Action made this assertion citing to paragraphs [0050] and [0070], but, as discussed above, both of these sections are silent as to the use of water as a cleaning solvent.

Regarding point (iii), Miyashita fails to disclose cleaning with water as discussed above. Further, while Watanabe discloses that water can be used in the cleaning step, because Watanabe is cited for disclosing using a solvent contained in the ink, Watanabe's cleaning step cannot also be cited as corresponding to the "filling the passage ... with purified water" step.

Regarding independent claim 2, the February 22, 2007 Office Action, cited by the Office Action, relies on the rationale provided in relation to claim 1, citing Ozaki as disclosing a storage solution.

Miyashita and Igari, if combined, fail to disclose the steps of (1) filling a passage, including a liquid droplet ejection head to dispose the liquid droplets and a conduit to feed the functional solution to the liquid droplet ejection head, with purified water; (2) filling the passage with a solvent dissolving both a solvent contained in the functional solution and the purified water; and (3) filling the passage with the solvent contained in the functional solution for the same reasons set forth above in relation to the rejection of claim 1.

Dependent claims 4 and 5 are patentable for at least the same reasons as their base claim 1 is patentable.

For the foregoing reasons, Applicant requests withdrawal of the rejections.

B. Miyashita, Naniwa, Caren, and Ozaki

The Office Action (1) rejects claims 1 and 3-5 under 35 U.S.C. §103(a) over Miyashita in view of U.S. Patent Publication No. 2002/0038611 to Naniwa et al. (Naniwa), and further in view of U.S. Patent Publication No. 2003/0011656 to Caren et al. (Caren); and (2) rejects claim 2 under 35 U.S.C. §103(a) over Miyashita in view of Naniwa and Caren, and further in view of Ozaki. Applicant respectfully traverses the rejections.

Naniwa discloses a plate-making method. The Office Action cites to Fig. 2, relating to the second embodiment, as showing a cleaning solution tank 208 connected by three-way valve 205, valve 207, liquid transportation pump 202, and ink concentration-controlling member 204 to head 201. The Office Action cites to paragraph [0185] as disclosing that the ejection head 22 of Figs. 10-16 can be cleared of contamination by "enforcedly flowing" ink solvent from the ink passage. The Office Action alleges that Naniwa discloses using a solvent from the functional solution (Office Action, page 3, lines 4-5 from the bottom), but Naniwa does not disclose this in the cited paragraph [0185].

The Office Action cites to paragraph [0199] as disclosing cleaning by a cleaning solution and to paragraph [0185] as disclosing cleaning by an ink solvent. Paragraph [0199] discloses the apparatus to clean head 201 (Fig. 2). Fig. 2 shows cleaning solution tank 208, ink tank 209, and waste solution tank 210. Paragraph [0185] discloses alternatives for the cleaning solution. Thus, paragraphs [0185] and [0199], in combination, disclose only, at best, an apparatus that can only perform one or more steps of cleaning with the same, single solution.

The Office Action acknowledges that Miyashita and Naniwa fail to disclose (1) "filling a passage, including a liquid droplet ejection head to dispose the liquid droplets and a conduit to feed the functional solution to the liquid droplet ejection head, with purified water" and (2) "filling the passage with a solvent dissolving both a solvent contained in the functional solution and the purified water" (Office Action, page 4). The Office Action cites to Caren as curing these deficiencies.

Caren discloses cleaning an inkjet printhead 10 (paragraph [0010]) of particulate buildup (paragraph [0098]). The method includes (1) cleaning the inkjet printhead 10 by a wash fluid and (2) optionally rinsing the printhead 10 with a rinse fluid (paragraph [0017]). The wash fluid preferably comprises water which is available at low cost and high purity

(paragraph [0049]). The rinse fluid can be pure deionized water, pure alcohol, etc. (paragraph [0051]).

The Office Action alleges that it would have been obvious to use the cleaning solution and rinsing fluid of Caren in the cleaning step of the Miyashita and Naniwa combination. However, because both Naniwa and Caren disclose cleaning of residue and particulate, the cleaning step(s) of Caren would replace, not augment, the cleaning step of Naniwa. Thus, the proposed combination of Miyashita, Naniwa, and Caren would only include the steps of (1) washing with the wash fluid of Caren, and (2) rinsing with the rinse fluid of Caren. Therefore, regarding independent claim 1, the proposed combination fails to disclose the third cleaning step of "filling the passage with the solvent contained in the functional solution."

Regarding independent claim 2, the Office Action cites Ozaki as disclosing a storage solution. Thus, claim 2 is patentable for at least the same reasons as claim 1 is patentable.

Dependent claims 4 and 5 are patentable for the same reasons as their base claim 1 is patentable.

For the foregoing reasons, Applicant requests withdrawal of the rejections.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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